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# Chapter 1 Introduction and Overview

The purpose of this guide is to provide you, the Operations and Maintenance (O&M)/Energy manager and practitioner, with useful information about O&M management, technologies, energy efficiency, and cost-reduction approaches. To make this guide useful and to reflect your needs and concerns, the authors met with O&M and Energy managers via Federal Energy Management Program (FEMP) workshops. In addition, the authors conducted extensive literature searches and contacted numerous vendors and industry experts. The information and case studies that appear in this guide resulted from these activities.

It needs to be stated at the outset that this guide is designed to provide information on effective O&M as it applies to systems and equipment typically found at federal facilities. This guide is not designed to provide the reader with step-by-step procedures for performing O&M on any specific piece of equipment. Rather, this guide first directs the user to the manufacturer's specifications and recommendations. In no way should the recommendations in this guide be used in place of manufacturer's recommendations. The recommendations in this guide are designed to supplement those of the manufacturer, or, as is all too often the case, provide guidance for systems and equipment for which all technical documentation has been lost.

As a rule, this guide will first defer to the manufacturer's recommendations on equipment operation and maintenance.



**Actions and activities recommended in this guide should only be attempted by trained and certified personnel. If such personnel are not available, the actions recommended here should not be initiated.**



## 1.1 About This Guide

This guide is designed to serve as a resource for O&M management and technical staff. It does not try to represent the universe of O&M-related material. Rather, it attempts to:

- Provide needed background information on why O&M is important and the potential for savings from good O&M.
- Define the major O&M program types and provide guidance on the structure of a good O&M program.
- Provide information on state-of-the-art maintenance technologies and procedures for key equipment.
- Identify information sources and contacts to assist you in getting your job done.

## 1.2 Target Audience

O&M/Energy managers, practitioners, and technical staff represent the prime focus of this document. However, a competent O&M program requires the participation of staff from five well-defined

areas: Operations, Maintenance, Engineering, Training, and Administration. While a given site may not have all five of these areas as separate entities, these functions are provided for within the organization. It is these staff that are targeted.

**A successful O&M program requires cooperation, dedication, and participation at all levels and cannot succeed without everyone involved understanding the basic principles and supporting the cause.**

## 1.3 Organization and Maintenance of the Document

It is the intention of the authors to update this guide periodically as new O&M procedures and technologies are developed and employed. This guide can be found on the FEMP Web site at [www.eere.energy.gov/femp/operations\\_maintenance/](http://www.eere.energy.gov/femp/operations_maintenance/), under Related Publications.

The guide consists of eleven chapters. This chapter provides an introduction and an overview. Chapter 2 provides the rationale for “Why O&M?” Chapter 3 discusses O&M management issues and their importance. Chapter 4 examines Computerized Maintenance Management Systems (CMMS) and their role in an effective O&M program. Chapter 5 looks at the different types of maintenance programs and definitions. Chapter 6 focuses on maintenance technologies, particularly the most accepted predictive technologies. Chapter 7 describes the building commissioning process and how it contributes to effective O&M. Chapter 8 covers the topic of metering and its applications for improved operations and efficiency. Chapter 9 explores O&M procedures for the predominant equipment found at most federal facilities. Chapter 10 describes some of the promising O&M technologies and tools on the horizon to increase O&M efficiency. Chapter 11 provides ten steps to initiating an *operational efficiency* program.

The O&M environment is in a constant state of evolution and the technologies and vocabularies are ever expanding. Therefore, a glossary of terms is presented in Appendix A. Appendix B provides a list of federal contacts for training and assistance. Appendix C includes a list of organizations and trade groups that have interest or are related to O&M. And finally, Appendix D is a form that can be used to submit suggestions or revisions to this guide.

Again, we designed this to be a useful document, and we welcome your input to help us keep it current. Please feel comfortable to make suggestions for changes, additions, or deletions using the form found in Appendix D.